

Full Length Research Paper

Improving well-being with a gratitude exercise in Japanese workers: A randomized controlled trial

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Few individual-focused interventions that focus on improving the well-being of employees have been conducted in the workplace. The purpose of this study was to examine the effectiveness of worksite intervention consisting of a gratitude exercise on employees' well-being, such as positive affect, life satisfaction and subjective happiness among Japanese workers. A randomized controlled trial was conducted among daytime local-government employees. Participants in the gratitude group were asked to write down up to five people to whom the participant was grateful or thankful in the past week, and participants in the control group were asked to write down up to five events that occurred during the past week, for 4 weeks. Gratitude-related feelings, positive affect, life satisfaction, and subjective happiness were measured as well-being indices three times, that is, at baseline, immediately post intervention and one-month after the intervention. Two-way analysis of variance revealed that gratitude-related feelings and positive affect improved in both groups. No significant effects were observed on life satisfaction and subjective happiness. Gratitude intervention may be beneficial to increase gratitude-related feelings and positive affect. However, similar tendencies were observed in the control group who were asked to simply write down five events that occurred during the week.

Key words: Gratitude, positive affect, life satisfaction, subjective happiness, intervention, employees, randomized controlled trial, Japan.

INTRODUCTION

The effectiveness of individual-focused interventions for reducing work-related stress has been shown in many studies. However, few individual-focused interventions that focus on improving the well-being of employees have been conducted in the workplace. The World Health Organization defined "health" as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." According to this definition of health, we should ameliorate both negative and positive aspects of human-beings in order to make

healthy individuals and healthy organizations. However, previous research on occupational health mainly focused on negative aspects of work because many important topics in this field such as stress, depression, injury, or violence are intrinsically negative. Therefore, further study is needed on how to improve workers' well-being.

The effective intervention for increasing well-being of employees is called positive psychology interventions (PPIs). PPIs are treatment methods or intentional activities that aim to cultivate positive feelings, behaviors, or cognitions (Sin and Lyubomirsky, 2009). Among many of the PPIs proposed and conducted to increase well-being in nonclinical samples, we focused on gratitude training in this study. Wood et al. (2010) reviewed 12 gratitude interventions and concluded that interventions to

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increase gratitude are effective in improving well-being. Increasing gratitude for employees may also be beneficial to enhance their well-being. A recent study suggested that receiving gratitude from others might elicit two ambivalent emotions; positive emotions such as joy and happiness, and negative emotions, such as apology and regret (Kuranaga and Higuchi, 2011). Feeling apology or regret for others may cause kindness behavior for others. At work, kindness behavior would be expected to cultivate positive relationships with colleagues or customers, improve social supports from supervisor or subordinates, and decrease interpersonal conflicts. Thus, gratitude intervention may also be effective for employees' health by not only preventing useless interpersonal conflicts, but also providing social support each other. However, since none of the studies reviewed by Wood et al. (2010) were mainly focused on the workplace, the effect of gratitude intervention for employees was not clear.

The purpose of this study was to examine the effect of worksite intervention that consisted of a gratitude exercise on Japanese employees' well-being, such as positive affect, life satisfaction and subjective happiness. We formulated the following hypotheses: (1) gratitude intervention increases gratitude-related feelings, and (2) gratitude intervention increases employees' positive affect, life satisfaction and subjective happiness.

MATERIALS AND METHODS

Participants

The participants were recruited at the mental health seminar held in local-government in 2009. The objective of the intervention study was aimed at increasing well-being, and 76 Japanese daytime local-government employees (21 women, 55 men) were accepted to participate in the study voluntarily. No incentives were used. Participants were randomly assigned to one of two groups: the gratitude group or control group. Participants in the gratitude group were asked to write down up to five people at work or in one's personal life to whom the participant was grateful or thankful during the past week in a journal, and participants in the control group were asked to write down up to five events that occurred at work or in one's personal life during the past week in a journal, for 4 weeks. All participants were asked to conduct this exercise each weekend. The journals were collected by the researchers at the end of the study. The gratitude exercise was based on the gratitude exercise developed by Emmons and McCullough (2003). Informed consent was obtained from all participants before entering the study. The Research Ethics Committee of Hiroshima University Graduate School of Education reviewed and approved the study procedure.

Study materials

Gratitude-related feelings, positive affect, life satisfaction, and subjective happiness were measured as well-being indices in a written questionnaire at three times - at baseline, immediately post-intervention and one-month after the intervention. Gratitude-related feelings were measured with two items: thankful and appreciative (Emmons and McCullough, 2003). Participants were asked to rate

the extent to which they were experiencing each feeling at the time of filling out the questionnaire on a 6-point Likert scale (1 = not at all to 6 = extremely). Cronbach's alpha coefficients were 0.63 at baseline, 0.85 at immediately post-intervention and 0.79 at one-month follow-up. Positive affect was assessed using the Japanese version of the Positive and Negative Affect Schedule (PANAS; Sato and Yasuda, 2001; Watson et al., 1988). Unlike the original version of the PANAS, the Japanese version consists of 8 items for positive affect (Yamasaki et al., 2006).

Further, participants were asked to rate the extent to which they were experiencing each feeling at the time of filling out the questionnaire on a 6-point Likert scale (1 = not at all to 6 = extremely). Cronbach's alpha coefficients were 0.93 at baseline, 0.91 at immediately post-intervention, and 0.90 at one-month follow-up. Life satisfaction was assessed using the Japanese version of the Satisfaction with Life Scale (SWLS), which is comprised of 5 items (Oishi, 2009; Diener et al., 1985). Participants indicated their agreement with the statements on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). Cronbach's alpha coefficients of the SWLS were 0.80 at baseline, 0.88 at immediately post-intervention and 0.88 at one-month follow-up. Subjective happiness was assessed using the Japanese version of the Subjective Happiness Scale (SHS), which is comprised of 4 items (Shimai et al., 2004; Lyubomirsky and Lepper, 1999). Cronbach's alpha coefficients of the SHS were 0.69 at baseline, 0.79 at immediately post-intervention, and 0.79 at one-month follow-up.

Statistical analyses

Differences in demographic and lifestyle variables and work-related stressors between the two groups were assessed using the χ^2 test and the t-test. Two-way repeated measures analysis of variance (ANOVA) was conducted to determine the effects of group (Gratitude vs. control) on gratitude-related feelings, positive affect, life satisfaction, and subjective happiness. All data were analyzed using the Statistical Package for the Social Sciences version 14.0 (SPSS, Inc., Chicago, IL).

RESULTS

After excluding 38 of the 76 participants (26 of whom did not perform the exercise [12 participants in the gratitude group and 14 participants in the control group], 2 did not answer the immediate post-intervention survey [1 participant in the gratitude group and 1 participant in the control group], 4 did not answer the follow-up survey [3 participants in the gratitude group and 1 participant in the control group], and 6 left certain questionnaire items incomplete [3 participants in the gratitude group and 3 participants in the control group]), the responses of the remaining 38 subjects (19 participants in the Gratitude group and 19 participants in the control group) were analyzed. No significant differences were found on the scores of gratitude-related feelings, positive affect, life satisfaction, and subjective happiness between the participants who completed and dropped out of the study at baseline.

Except for one participant in the control group who completed the exercise for 3 weeks, all of the participants in each group completed the exercise for 4 weeks. The

Table 1. Characteristics of the participants in the gratitude and control groups.

Data	Gratitude (n = 19)		Control (n = 19)		Chi-square
	n	%	n	%	
Gender					
Women	5	26.3	4	21.1	0.15
Men	14	73.7	14	78.9	
Occupation					
Manager	3	15.8	3	15.8	0.15
Professional	6	31.6	8	42.1	
Clerk	10	52.6	8	42.1	
Smoking status					
Non-smoker	4	21.1	4	21.1	0.00
Current smoker	15	78.9	15	78.9	
Alcohol consumption					
6 days/ week	7	36.8	6	31.6	0.22
3 to 5 days/ week	1	5.3	1	5.3	
1 to 2 days/ week	3	15.8	4	21.1	
Rarely	8	42.1	8	42.1	
Physical exercise					
Almost everyday	2	10.5	2	10.5	3.77
3 to 4 days/week	3	15.8	3	15.8	
1 to 2 days/week	3	15.8	6	31.6	
1 to 3 days/month	3	15.8	5	26.3	
None	8	42.1	3	15.8	
Annual income (Japanese million yen)					
8 – 8.99	3	15.8	1	5.3	4.26
7 – 7.99	4	21.1	7	36.8	
6 – 6.99	5	26.3	7	36.8	
5 – 5.99	5	26.3	4	21.1	
4 – 4.99	2	10.5	0	0.00	
Age (years)					
	M	SD	M	SD	t-value
Age (years)	48.5	4.6	48.4	5.8	0.93
Overtime hours	11.0	18.8	7.2	10.6	0.76
Sleeping hours	6.1	1.3	6.4	0.9	-1.21

baseline characteristics of the gratitude and control groups are shown in Table 1. There were no significant differences in baseline characteristics between the two groups. At baseline, there were no significant differences in the levels of gratitude-related feeling, positive affect, life satisfaction, and subjective happiness between the Gratitude and control groups.

Gratitude-related feelings

We examined whether the 4-week gratitude exercise elicited a differential amount of gratitude-related feelings

across the 8-week study. The main effect of time was significant ($p < 0.05$, Table 2). Multiple comparisons with the Bonferroni method indicated that there was a significantly higher gratitude-related feeling at the one-month follow-up compared with that at baseline. Effect sizes (Cohen's d) were -0.35 for the mean difference between baseline and immediately post-intervention and -0.53 for the mean difference between baseline and one-month follow-up in the gratitude group, and they were -0.10 for the mean difference between baseline and immediately post-intervention and -0.36 for the mean difference between baseline and one-month follow-up

Table 2. Comparison of the gratitude-related feelings, positive affect, life satisfaction, and subjective happiness between the gratitude and control groups.

Parameter	Baseline		Immediate post intervention				Follow-up				Analysis of variance (ANOVA)				
	Gratitude (n = 19)		Control (n = 19)		Gratitude (n =19)		Control (n =19)		Gratitude (n =19)		Control (n =19)		Main effects		Time × Condition
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	Time	Condition	F
Gratitude-related feelings	6.58	1.98	6.37	2.27	7.32	2.43	6.58	2.27	7.63	2.17	7.11	2.17	3.34*	0.71	0.29
PA	21.47	7.43	21.95	7.06	22.79	8.37	24.58	6.27	24.74	7.01	25.00	7.01	5.87*	0.17	0.40
SWLS	19.16	5.00	19.32	19.32	19.11	5.95	20.74	4.64	20.00	5.13	20.74	5.13	1.95	0.32	0.83
SHS	17.00	3.25	18.42	18.42	18.16	4.00	19.4	3.47	18.21	4.02	19.11	4.02	2.28	1.46	0.12

Surveys were conducted to measure the gratitude-related feelings, positive affect (PA), life satisfaction [Satisfaction with Life Scale (SWLS)], and subjective happiness [Subjective Happiness Scale (SHS)] at three time points, i.e., at baseline, immediately post-intervention, and one-month after the intervention (follow-up). The scores are expressed as mean (M) and standard deviation (SD). "Condition" refers to intervention (gratitude) or no intervention (control). *P < 0.05.

Table 3. Means and standard deviations for the gratitude and control conditions for gratitude-related feelings, positive affect, life satisfaction, and subjective happiness at baseline, and immediate post intervention and the results of ANOVAs.

Parameter	Baseline		Immediate post intervention				Analysis of variance (ANOVA)				
	Gratitude (n = 25)		Control (n = 23)		Gratitude (n =25)		Control (n =23)		Main effects		Time × Condition
	M	SD	M	SD	M	SD	M	SD	Time	Condition	F
Gratitude-related feelings	15.68	10.65	11.77	8.88	16.28	10.48	13.59	9.23	2.35	1.41	0.60
PA	23.16	8.64	20.74	7.18	24.44	8.56	25.09	6.10	8.90**	0.19	2.65
SWLS	32.84	25.72	24.91	18.14	33.08	26.27	28.74	18.41	2.03	0.92	1.58
SHS	15.92	3.45	17.35	3.89	16.96	4.16	18.22	4.24	4.45*	1.65	0.04

PA, Positive affect; SWLS, satisfaction with life scale; SHS, subjective happiness scale. "Condition" refers to intervention (gratitude) or no intervention (control). *P < 0.05, **P < 0.01.

in the control group.

Positive affect, life satisfaction and subjective happiness

A significant main effect of time was found on

positive affect (p < 0.05, Table 2). Multiple comparisons with the Bonferroni method indicated that there was a significantly higher positive affect at one-month follow-up compared with that at baseline. However, Effect sizes (Cohen's d) were -0.17 for the mean difference between baseline and immediately post-intervention and -0.46 for

the mean difference between baseline and one-month follow-up in the gratitude group, and they were -0.40 for the mean difference between baseline and immediately post-intervention and -0.47 for the mean difference between baseline and one-month follow-up in the control group. No significant main effects and interaction effects

were found on life satisfaction and subjective happiness.

Comparisons of the scores of gratitude-related feelings, positive affect, life satisfaction and subjective happiness among baseline and immediate post intervention, including all of the participants who completed these measures at immediate post intervention

We additionally analyzed the differences of the scores of gratitude-related feelings, positive affect, life satisfaction, and subjective happiness among baseline and immediate post intervention including all of the participants who completed these measures both at baseline and at immediate post intervention. Two-way repeated measures analysis of variance (ANOVA) was also conducted.

According to the results, the main effect of time was significant for positive affect ($F=8.90$, $p < 0.01$) and subjective happiness ($F=4.45$; $p < 0.05$), suggesting that positive affect and subjective happiness were increased irrespective of groups. Table 3 showed the detail of the results of ANOVAs.

DISCUSSION

The primary purpose of this study was to examine whether gratitude intervention can increase gratitude-related feelings among Japanese workers. Based on the scores of Cohen's d , although no significant interaction effect between time and group was observed, the gratitude exercise may have increased gratitude-related feelings to a greater extent than the control exercise. According to the criterion of Cohen (1992), there was a "moderate" effect on gratitude-related feelings at one-month after the intervention. Thus, gratitude intervention in which participants list up to five people to whom the participant is grateful or thankful every week might be effective in increasing gratitude-related feelings in Japanese workers.

Moreover, positive affect increased in both the gratitude and control groups, suggesting that an exercise in which the participants write down up to five people to whom the participant is grateful or thankful and up to five events that occurred during the week might be beneficial in ameliorating participants' positive affect. Several reasons that a similar effect had occurred on positive affect in the gratitude and control group should be mentioned. First, writing positive events among the participants in control group may contribute to increase their positive affect. An internet-based randomized controlled trial for 411 adult participants conducted by Seligman et al. (2005) revealed that writing down three good things and thinking the reasons why they happened every day for a week might contribute to increase participants' subjective happiness. Replicable results using a larger sample size were also

shown by Mongrain and Anselmo-Mattews (2012). In our study, because 18 of the 19 participants in the control group wrote more than one positive event over the 4-week period (e.g., attending his/her children's athletic contest, having completed something successfully at their job, etc.), their positive affect might have increased unexpectedly.

Although effect of the "three good things" intervention for positive affect was not demonstrated in previous studies aforementioned, our findings suggest that writing down more than one positive event once a week for one month may also contribute somewhat to boosting up workers' positive affect. Secondly, writing down both up to five events that occurred at work or in one's personal life during the past week and participants' emotions associated with some events may contribute to ameliorating their positive affect among control group. Pennebaker and Beall (1986) revealed that writing down both the trauma and participants' emotions associated with the trauma could decrease the number of self-reported health problems among 42 university students. In our study, all 19 participants in the control group wrote one or more emotions adding on the experienced events. This may be another reason we could find the increase in positive affect in the control group.

However, we could not find significant increases in life satisfaction and subjective happiness through gratitude exercise. Potential reasons for these results are considered from three perspectives. First, gratitude exercise was conducted only once a week. Keeping diaries about gratitude for several weeks is beneficial to ameliorate participants' emotions compared with weekly rating method (Emmons and McCullough, 2003); more intensive intervention should be needed in the future study. Secondly, self-report measures of life satisfaction and subjective happiness may not be sensitive enough to capture well-being in Japan. Uchida and Kitayama (2009) found that only 63 and 47% of the Japanese undergraduates felt positive meanings for joy and satisfaction, respectively. Therefore, further study should be warranted considering behavioral measures (Baumeister et al., 2007) instead of self-reports, such as kindness behavior. Thirdly, the effects of gratitude exercise on life satisfaction and subjective happiness is intrinsically small or nothing. Gratitude is particularly controversial, as other studies have found no effects as well. As reported by Koo et al. (2008), no significant effect was revealed on University students' affect with interventions just asking to describe a grateful event. Although Koo et al. (2008) did not deal with life satisfaction or subjective happiness as dependent variables, we believe that gratitude exercise may also have small effects on these variables since positive affect is a key to increase life satisfaction (Lyubomirsky et al., 2005) and subjective happiness (Kuppens et al., 2008).

Several other limitations were also experienced. First, those not continuing with the intervention may have

represented a population who suffered from more health problems than the respondents. The possibility exists that some workers who had serious health problems were unable to answer the questionnaire; thus, we cannot disregard the healthy worker effect in our results. Secondly, the sample size is relatively small; thus, one cannot simply draw clear conclusions based on this study. It is necessary to examine the intervention effects with a larger sample, including a broader range of occupations in multiple industries. With these limitations, it is concluded that gratitude intervention may be beneficial in increasing gratitude-related feelings and positive affect. However, similar tendencies were observed in the control group who simply wrote down five events that occurred during the week. Further study is, therefore, warranted.

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